Substitute Form PTO-1449	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 06618-920001	Application No. 10/722,352	
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	eets if necessary)	Filing Date November 24, 2003	Group Art Unit	

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Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
AM	AA	6,703,150	March 9, 2004	Surampudi, et al.	\		
	AB	6,680,139	Jan 20, 2004	Narayanan, et al.			
	AC	6,589,684	July 8, 2003	Surampudi, et al.			
	AD	6,533,919	Mar 18, 2003	Narayanan, et al.			
	AE	6,485,851	Nov 26, 2002	Narayanan, et al.		-	
	AF	6,468,684	Oct 22, 2002	Chisholm, et al.	\		
	ĄG	6,444,343	Sept 3, 2002	Prakash, et al.		\	
	AH	6,440,594	Aug 27, 2992	Kindler, et al.			
	AI	6,432,284	Aug 13, 2002	Narayanan, et al.		1	
	AJ	6,420,059	July 16, 2002	Surampudi, et al.			
	AK	6,391,486	May 21, 2002	Narayanan, et al.		1	
	AL	6,368,492	April 9, 2002	Narayanan, et al.			
	AM	6,306,285	Oct 23, 2001	Narayanan, et al.			
	AN	6,303,244	Oct 16, 2001	Surampudi, et al.			
	AO	6,299,744	Oct 9, 2001	Narayanan, et al.		1	
	AP	6,277,447	Aug 21, 2001	Chun, et al.			
	AQ	6,265,093	July 24, 2001	Surampudi, et al.			
	AR	6,254,748	July 3, 2001	Surampudi, et al.			\
	AS	6,248,460	June 19, 2001	Surampudi, et al.			
	AT	6,221,523	April 24, 2001	Chun, et al.			
	AU	6,171,721	Jan 9, 2001	Narayanan, et al.			
	AV	6,146,781	Nov 14, 2000	Surampudi, et al.			
	AW	5,945,231	Aug 31, 1999	Narayanan, et al.			
	AX	5,795,496	Aug 18, 1998	Yen, et al.			
	AY	5,773,162	June 30, 1998	Surampudi, et al.			
V	AZ	5,599,638	Feb 4, 1997	Surampudi, et al.			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
AM	AAA	3,899,354	Aug 12, 1975	Kordesch			

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Examiner Initial AM	Desig. ID ABB	Document Number	Publication				Filing Date
AM	ABB		Date	Patentee	Class	Subclass	If Appropriate
		4,125,676	Nov 14, 1978	Maricle, et al.	\		
	ACC	4,350,608	Sept 21, 1982	Gestaut			
	ADD	4,395,322	July 26, 1983	Harris			
	AEE	4,478,917	Oct 23, 1984	Fujita, et al.			
	AFF	4,526,843	July 2, 1985	Kaufman, et al.			
	AGG	4,629,664	Dec 16, 1986	Tsukui, et al.			
	АНН	4,728,533	Mar 1, 1988	Feigenbaum, et al.	_		
	AII	4,766,043	Aug 23, 1988	Shirogami, et al.	·	1	
	AJJ	4,810,597	Mar 7, 1989	Kumagai, et al.			
	AKK	4,824,739	Apr 25, 1989	Breault, et al.			
	ALL	4,828,941	May 9, 1989	Sterzel			
	AMM	5,013,618	May 7, 1991	Luczak			,
	ANN	5,225,391	July 6, 1993	Stonehart, et al.			
	A00	5,294,232	Mar 15, 1994	Sakairi, et al.			
	APP	5,294,580	Mar 15, 1994	Dufner		1	
	AQQ	5,308,465	May 3, 1994	Hillrichs, et al.			
	ARR	5,330,860	July 19, 1994	Grot, et al.			1
	ASS	5,366,821	Nov 22, 1994	Merritt, et al.			
	ATT	5,415,888	May 16, 1995	Banerjee, et al.			
	AUU	5,436,086	July 25, 1995	Seymour, et al.			
	AVV	5,561,000	Oct 1, 1996	Dirven, et al.			
	AWW	5,928,807	July 27, 1999	Elias			
	AXX	5,432,023	July 11, 1995	Yamada, et al.			
	AYY	5,709,961	Jan 20, 1998	Cisar, et al.			
	AZZ	5,863,672	Jan 26, 1999	Ledjeff, et al.			T
V	AAAA	5,925,477	July 20, 1999	Ledjeff, et al.			
AM	ABBB	5,952,118	Sept 14, 1999	Ledjeff, et al.			

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AM	ACCC	6,054,228	April 25, 2000	Cisar, et al.	1		
	ADDD	6,214,485	April 10, 2001	Barnett, et al.			
	AEEE	6,479,178	Nov 12, 2002	Barnett			
	AFFF	4,365,008	Dec 21, 1982	DeCasperis, et al.			
	AGGG	4,588,661	May 13, 1986	Kaufman, et al.			
	АННН	5,236,687	Aug 17, 1993	Fukuda, et al.	1		
	AIII	5,252,410	Oct 12, 1993	Wilkinson, et al.		1	
	AJJJ	5,482,792	Jan 9, 1996	Faita, et al.			**************************************
	AKKK	5,641,586	June 24, 1997	Wilson			
	ALLL	5,858,569	Jan 12, 1999	Meacher, et al.		1	
	AMMM	6,258,476	July 10, 2001	Cipollini			
	ANNN	3,013,098	Dec 12,1961	Hunger, et al.			
	A000	3,143,440	Aug 4, 1964	Hunger, et al.			
	APPP	3,409,520	Nov 5, 1968	Bolmer			
	AQQQ	4,011,149	Mar 8, 1977	Nozik			
	ARRR	4,085,709	April 25, 1978	Tangri			
	ASSS	4,175,013	Nov 20, 1979	Barnert, et al.			1
	ATTT	4,248,941	Feb 3, 1981	Louis, et al.			
	AUUU	4,257,856	Mar 24, 1981	Beni, et al.			
	AVVV	4,390,603	June 28, 1983	Kawana, et al.			
	AWWW	4,431,608	Feb 14, 1984	Katagiri, et al.			
	AXXX	4,465,570	Aug 14, 1984	Oda, et al.			
	AYYY	4,594,297	June 10, 1986	Polak, et al.			
	AZZZ	4,699,700	Oct 13, 1987	Dhooge			1
	AAAAA	5,037,518	Aug 6, 1991	Young, et al.			1
V	ABBBB	5,394,852	Mar 7, 1995	McAlister		-	1
AM	ACCCC	5,513,600	May 7, 1996	Teves			1

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AM	ADDDD	5,592,028	Jan 7, 1997	Pritchard	1		
	AEEEE	5,800,938	Sept 1, 1998	Watanabe			
	AFFFF	5,840,172	Nov 24, 1998	Zugravu			
	AGGGG	4,349,613	Sept 14, 1982	Winsel			
	АНННН	5,141,823	Aug 25, 1992	Wright, et al.			
	AIIII	5,445,905	Aug 29, 1995	Marsh, et al.			
	AJJJJ	5,599,639	Feb 4, 1997	Sansone, et al.		\	
	AKKKK	4,659,559	April 21, 1987	Struthers			
	ALLLL	4,985,315	Jan 15, 1991	Lemoine			
	AMMMM	5,344,548	Sept 6, 1994	Alberti, et al.			
	ANNNN	5,436,094	July 25, 1995	Horimoto, et al.			
	A0000	5,573,648	Nov 12, 1996	Shen, et al.			
	APPPP	5,576,115	Nov 19, 1996	Capuano, et al.			
	AQQQQ	5,591,545	Jan 7, 1997	Miyashita, et al.			
	ARRRR	5,766,799	June 16, 1998	Hong			
	ASSSS	6,001,507	Dec 14, 1999	Ono, et al.			
	ATTTT	6,059,943	May 9, 2000	Murphy, et al.			· .
	AUUUU	3,423,228	Jan 21, 1969	Oster, et al.			
	AVVVV	4,419,209	Dec 6, 1983	Klinkowski	•		
	AWWWW	7 4,537,840	Aug 27, 1985	Tsukui, et al.			
	AXXXX	4,596,858	June 24, 1986	Gregor, et al.			
	AYYYY	4,605,685	Aug 12, 1986	Momose, et al.			
	AZZZZ	4,729,930	Mar 8, 1988	Beal, et al.			
	AAAAA	5,049,275	Sept 17, 1991	Gillberg-Laforce, et al.			
	ABBBBB	5,260,143	Nov 9, 1993	Voss, et al.			
V	ACCCCC	5,460,896	Oct 24, 1995	Takada, et al.			
AM .	ADDDDD	5,523,177	June 4, 1996	Kosek, et al.			

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Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
AM	AEEEEE	5,599,640	Feb 4, 1997	Lee, et al.			
	AFFFFF	5,643,689	July 1, 1997	Flesicher, et al.	1		
	AGGGGG	5,645,950	July 8, 1997	Benz, et al.			
	АНННН	5,679,482	Oct 21, 1997	Ehrenberg, et al.			
	AIIIII	5,834,523	Nov 10, 1998	Steck, et al.			
	AJJJJ	5,919,583	July 6, 1999	Grot, et al.		-	
	AKKKKK	3,581,462	June 1, 1971	Stump		,	
	ALLLLL	3,982,961	Sept 28, 1976	Grasso		1	
	аммммі	4,354,861	Oct 19, 1982	Kalt			
	ANNNN	4,729,931	March 8, 1988	Grimble			
	A00000	5,047,299	Sept 10, 1991	Shockling			
	APPPPP	5,164,060	Nov 17, 1992	Eisman, et al.			
	AQQQQQ	5,169,730	Dec 8, 1992	Reichner, et al.			
	ARRRR	5,527,631	June 18, 1996	Singh, et al.		\ \	
	ASSSSS	5,582,632	Dec 10, 1996	Nohr, et al.		\	
	ATTTTT	5,593,721	Jan 14, 1997	Daidai, et al.			
	AUUUUU	5,634,341	June 3, 1997	Klanchar, et al.			
	AVVVV	5,851,689	Dec 22, 1998	Chen			
	wwww	6,033,793	Mar 7, 2000	Woods, et al.			
	AXXXX	6,045,772	April 4, 2000	Szydlowski, et al.			
	AYYYYY	6,136,463	Oct 24, 2000	Kindler, et al.			
	AZZZZZ	6,274,260	Aug 14, 2001	Schuler			
	ΑΛΛΛΛ	4,644,751	Feb 24, 1987	Hsu ·			
	аввввві	5,401,589	Mar 28, 1995	Palmer, et al.			
	ACCCCC	5,916,505	June 29, 1999	Cisar, et al.			
V	ADDDDD	4,390,603	June 28, 1983	Kawana, et al.			
AM	AEEEEE	5,316,871	May 31, 1994	Swathirajan, et al.			

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AM	AFFFFF	5,330,626	July 19, 1994	Banerjee	1	•		
	AGGGGG	5,399,184	Mar 21, 1995	Harada, et al.	1			
	АННННН	4,341,608	July 27, 1982	St. John				
	AIIIIII	5,176,809	Jan 5, 1993	Simuni				
	AJJJJJJ	3,410,780	Nov 12, 1968	Holden				
	AKKKKK	3,464,008	Aug 26, 1969	Meysson, et al.				
	ALLLLLI	3,480,520	Nov 25, 1969	Smith				
	ммммм	4,003,705	Jan 18, 1977	Buzza, et al.		1		
	ANNNNN	4,025,412	May 24, 1977	LaConti		1		
	400000	4,575,410	Mar 11, 1986	Neti				
	APPPPP	4,744,954	May 17, 1988	Campbell, et al.				
	AQQQQQ	4,752,361	June 21, 1988	Gautschi				
	ARRRRI	4,875,900	Oct 24, 1989	Singh, et al.				
	ASSSSS	5,118,398	June 2, 1992	McElroy, et al.		1		
	ATTTTT	5,151,166	Sept 29, 1992	Harral, et al.		1		
	AUUUUU	5,173,166	Dec 22, 1992	Tomantschger, et al.				
	AVVVVV	5,322,602	June 21, 1994	Razaq			\	
	wwwww	5,518,830	May 21, 1996	Worrell, et al.			\	
	AXXXXX	5,897,766	April 27, 1999	Kawatsu				
	AYYYYY	4,738,903	April 19, 1988	Garow, et al.			\	
	AZZZZZ	4,745,953	May 24, 1988	Kobayashi, et al.				
	ΑΑΑΑΑ	5,335,628	Aug 9, 1994	Dunbar			\ .	
	вввввв	3,776,462	Dec 4, 1973	Payne, Jr., et al.				
	ccccc	5,547,911	'Aug 20, 1996	Grot			1	
	DDDDDD	5,998,057	Dec 7, 1999	Koschany, et al.			1	
$\overline{V}$	AEEEEEE	4,130,484	Dec 19, 1978	Marwil, et al.			. 1	
AM	AFFFFF	5,019,263	May 28, 1991	Haag, et al.			1	

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Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
AM	GGGGGG	5,250,184	Oct 5, 1993	Maier	1		
	ннннн	5,603,830	Feb 18, 1997	Everhart, et al.			
	AIIIIII	5,679,248	Oct 21, 1997	Blaney			
	AJJJJJJ	5,935,431	Aug 10, 1999	Korin			
	KKKKKK	3,993,985	Nov 23, 1976	Chopard, et al.			
	ALLLLLL	5,431,789	July 11, 1995	Huber, et al.			
	имммм	5,598,088	Jan 28, 1997	Richter			
	אממממו	5,658,682	Aug 19, 1997	Usuda, et al.			
	000000	5,698,089	Dec 16, 1997	Lewis, et al.			
	APPPPPP	5,733,437	Mar 31, 1998	Baker, et al.			
	QQQQQ	5,814,995	Sept 29, 1998	Tasdighi			
	RRRRRR	3,113,049	Dec 3, 1963	Worsham			
	ASSSSSS	3,368,922	Feb 13, 1968	Salyer			
	ATTTTTT	4,262,063	April 14, 1981	Kudo, et al.			
	บบบบบบ	4,407,905	Oct 4, 1983	Takeuchi, et al.			\
	VVVVV	4,420,544	Dec 13, 1983	Lawson, et al.			
	wwww	4,493,878	Jan 15, 1985	Horiba, et al.			
	XXXXX	4,562,123	Dec 31, 1985	Shimizu, et al.			
	YYYYY	4,612,261	Sept 16, 1986	Tsukui, et al.			1
	AZZZZZZ	4,828,941	May 9, 1989	Sterzel			
	AAAAA	4,876,115	Oct 24, 1989	Raistrick			
	вввввы	5,186,877	Feb 16, 1993	Watanabe			
	ccccc	4,275,126	June 23, 1981	Bergmann, et al.			1
	DDDDDD	4,882,232	Nov 21, 1989	Bugnet, et al.		<del></del>	
	EEEEEE	5,084,144	Jan 28, 1992	Reddy, et al.			
V	afffffff	5,242,764	Sept 7, 1993	Dhar			
AM	GGGGG	5,277,996	Jan 11, 1994	Marchetti, et al.			

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Exam Initia		Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
AM		нннннн	5,512,152	April 30, 1996	Schicht, et al.			
		AIIIIIII	5,750,013	May 12, 1998	Lin			
		VIIIIIII	4,711,907	Dec 8, 1987	Sterzel, et al.			
		ккккк	5,013,765	May 7, 1991	Sluma, et al.			
	/	LLLLLLI	5,468,574	Nov 21, 1995	Ehrenberg, et al.			
. 2	AM	ммммм	US 2003- 0148162A1	Aug 7, 2003	Narayanan, et al.			

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AM I	NNNNN	ЈР63-076264	Apr 6, 1988	ЛР	<b>\</b>	1	only	
	00000	JP2148657	June 7, 1990	JP			Abstract only	
J	APPPPPPP	DE4243600	July 1, 1993	DE			Abstract only	
ن	20000	EP0248394	Dec 9, 1987	EP			Abstact equivalent	
	RRRRRRI	EP0546594	June 16, 1993	EP			Abstract equivalent	
1	SSSSSSS	JP60151969	Aug 10, 1985	JР		,	Abstract only	
	TTTTTT	JP64077876	Mar 23, 1989	JР			Abstract only	
ر	שטטטטט	EP0818841	Jan 14, 1998	EP			Abstract only	
ر ا	vvvvv	JP59209277	Nov 27, 1984	JP			Abstract only	
ن ا	wwww	/ JP60165062	Aug 28, 1985	JP			Abstract only	
1	XXXXX	DE3110571	Sept 30, 1982	DE			Abstract only	
ر ا	YYYYYY	EP0629013	Dec 14, 1996	EP			Abstract only	
<u> </u>	ZZZZZZ	EP0716463	June 12, 1996	EP			Abstract only	
AM ノ	AAAAA	FR1436154	April 22, 1966	FR				x

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lni	tial	ID	Number	Date	Patent Office	Class	Subclass	Yes	No
A	ر. M	вввввв	Љ6188008	July 8, 1994	ЛР			Abstract only	
	ر	ccccc	ЛР06251779	Sept 9, 1994	ЛР			Abstract only	
	/ /	DDDDDI	EP0241432	Oct 14, 1987	EP			Abstract only	
	AM.	EEEEEEE	Љ02-051865	Feb 21, 1990	JP			Abstract only	

	Other Documents (include Author, Title, Date, and Place of Publication)			
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Initial	ID	Document		
AM I	FFFFFFF	Naryanan, et al., "Studies on the Electro-Oxidation of Methanol and Formaldehyde at Carbon-Supported Platinum and Platinum Alloy Electrodes", 1046b Extended Abstracts, Spring Meeting, October 11-16, 1992, St. Louis Missouri, 92/2, pp. 78-79		
	GGGGGG	Narayanan, et al., "Implications of Fuel Crossover in Direct Methanol Fuel Cells", 1046b Extended Abstracts, Fall Meting, October 10-15, 1993, New Orleans, Louisiana, 93/2, pp. 126-127		
	ннннн	Zawodzinski, et al., "Methanol Cross-over in DMFC's: Development of Strategies for Minimization", 1046b Extended Abstracts, Spring Meeting, October 9-14, 1994, St. Louis, Missouri, 94/2, p. 960		
,	AIIIIIIII	Kosek, et al., "A Direct Methanol Oxidation Fuel Cell", Proceeding of the 28th Intersociety Energy Conversion Engineering Conference, Vol. 1, August 8, 1993, pp. 11209-11214,		
	AJJJJJJJ.	Hamnett, et al., "Electrocatalysis and the Direct Methanol fuel Cell", <u>Chemistry and Industry</u> , No. 13, pp. 480-483, July 6, 1992		
	KKKKKK	Skerrett, "Fuel Cell Update", Popular Science, pp. 88-91, pp. 120-121, June, 1993		
	LLLLLLL	(BFE) Type Methanol Anode", J. Electroanal. Chem., Vol. 199, pp, 311-322, 1986		
	MMMMI	Watanabe, et al., "The use of thin films of sulphonated fluoro-polymers for improvements in the activity and durability of Pt electrocatalysts for methanol electrooxidation", <u>J. Electroanal. Chem.</u> , Vol. 284, pp. 511-515, 1990		
	NNNNN	Hawley's Condensed Chemical Dictionary, Thirteenth Edition, 1997, entry of "pore", p. 910		
	000000	Poltarzewski, et al., "Nafion Distribution in Gas Diffusion Electrodes for Solid-Polymer- Electrolyte-Fuel-Cell Applications", <u>Journal of the Electrochemical Society</u> , Vol. 139, No. 3, pp. 761-765, March, 1992		
	PPPPPPP	Cells", Proceedings of the Workshop in Direct Methanol-Air Fuel Cells, Vol. 92-14, pp. 24-36, 1992		
	QQQQQQ	Narayanan, et al., "Recent Advanced in PEM Liquid-Feed Direct Methanol Fuel Cells", The Eleventh Annual Battery Conference on Applications and Advances", California State University, Long Beach, California, January 9-12, 1996, pp. 113-122		
RRRRR Supported Platinum and Platinum Alloy Electrodes", The Electrochemical Socie		Narayanan, et al., "Studies on the Electro-Oxidation of Methanol and Formaldehyde at Carbon-Supported Platinum and Platinum Alloy Electrodes", The Electrochemical Society, Inc., Fall Meeting, Toronto, Ontario, Canada, October 11-16, 1992, pp. 78-79		

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(Use several sheets if necessary)		Applicant S. Narayanan et al.			
		Filing Date November 24, 2003	Group Art Unit 1746		

	Other Documents (include Author, Title, Date, and Place of Publication)				
Examiner	Desig.	·			
Initial	ID	Document			
SSSSSSS Science R		Kawashima, et al., "Surface-Activated Amorphous Alloy Fuel Electrodes for Methanol Fuel Cell", Science R eports of the Research Institutes, Tohoku University, Series A: Physics, Chemistry, and Metallurgy, Sendai, Japan, Vol. 31, no. 1, pp. 174-182 (date not provided)			
	TTTTTT	Merriam-Webster's Collegiate Dictionary, 10th Edition, p. 115, 1992 (no month available)			
	UUUUUU Hawley's Condensed Chemical Dictionary, 11th Edition, Van Nostrand Reinhold, New York,				
	Politova, et al., "Ethylene Hydrogenation in Electrochemical Cell With Solid Proton-Conductin Electrolyte", Reaction Kinetics and Catalysis Letters, Vol. 41, No. 2, pp. 321-326, May, 1990				
	WWWW Haile, et al., "Superprotonic conductivity in Cs <sub>3</sub> (HSO <sub>4</sub> ) <sub>2</sub> (H <sub>2</sub> PO <sub>4</sub> )", Solid State Ionics, Vol. 22, 128-134, 1995				
Haile, "Hydrogen-Bonding and Phase Transitions in Proton-Conducting Solid Acids  Research Society Symposium Proceedings, Vol. 547, pp. 315-326, November 30-De  Boston, Massachusetts, USA					
$\overline{\mathbf{V}}$	YYYYY	Mhiri, "Hydrogen bonding in Cs <sub>1-x</sub> M <sub>x</sub> HSO <sub>4</sub> protonic conductors", Solid State Ionics, Vol. 61, pp. 187-191, May, 1993			
AM	ZZZZZZZ	Zaidi, et al., "Solid Polymer Composite Electrolytes for PEMFC", 33 <sup>rd</sup> Intersociety Engineering Conference on Energy Conversion, August 2-6, 1998, August 2-6, 1998, Colorado Springs, Colorado, USA			

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